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AUTHOR Skelton, John E.
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ABSTRACT

A preliminary study of alternative methods of organizing, managing, and financing computing at the nation's institutions of higher education is explored in the context of transactional analysis. The purpose and contents of the forthcoming final report (designed for university presidents) is described. The games, as intended and defined by the paper, concern themselves with what computing alternatives are considered and what ones are not considered, why they arose in the first place, and how the issue is resolved. The games described briefly in this paper are "Balance of Payments Games", "High Society Game", "Welfare and Proud Poor Game", "Faculty Power Game", and the "Godfather Game", among others. The goal of the paper is to help people understand the institutional dynamics involved in the selection of computing alternatives. (WH)

WORKING PAPER

THE GAMES UNIVERSITIES PLAY
(with apologies to Dr. Berne)

John E. Skelton
~~Department~~ of Mathematics
~~University~~ of Denver

Note: Address as of July 1, 1974 is:

John E. Skelton
Director, Computer Center
University of Minnesota, Duluth
Duluth, Minnesota 55812

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The Games Universities Play
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John E. Skelton
Department of Mathematics
University of Denver

In 1971 members of the Mathematics Department and the Industrial Economics Division of the University of Denver were awarded an N.S.F. grant to study alternative methods of organizing, managing and financing computing at the nation's institutions of higher education.[1] We felt that because of several factors--the economic crunch, increased state involvement, decreased federal support, etc.--the state of computing at colleges and universities was at a turning point. In terms of computing, the gap between the haves and the have nots was widening. As pointed out by Professor Greenberger in a recent issue of Science, "The day of the large general-purpose, single facility computer center may be ending. . . ." Although flourishing for a number of years,

> . . . a sharp drop-off in external support and funded usage compounded by some customer relations and credibility problems arrested its development. As deficits began to appear like warts on soaring computer budgets, institutional executives started searching for alternatives to the computer center.[2]

It was our contention that many alternatives to the computer center--alternative organizations, management and financing--either had been

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[1] N.S.F. Grant GJ32368.

[2] Greenberger, Martin, "Computing in Transition", Science, (Vol. 181, No. 4106) 28 September 1973.

tried in the past or were presently in use in an effort to solve the increasing problems. However, information as to the attractiveness, inner-workings and relative success of these alternatives on a campus was not being disseminated to the higher education community at large.

The study was conducted by site visitations of teams. A typical team was composed of a computer scientist, an economist and an outside consultant (usually someone recognized to be knowledgeable in institutional computing). The team would typically spend two or three days at an institution interviewing students, faculty, administration and computing center staff. Anonymity was guaranteed to all interviewed and a free exchange of viewpoints was invited. In some cases, where specific information was needed, shorter visits or telephone interviews were used. Governmental units associated with computing on a statewide level were also interviewed. The overall project used an advisory board of recognized computing authorities with extensive institutional computing experience. Sites were selected to be visited, not on a statistical basis, but on the basis of known or suspected employment of a particular alternative of computing organization, management or financing and with the concurrence of the advisory board.

The final report is now in preparation. The report will be a short, 150 page or so, pocketbook-sized document written to be read by college and university presidents.[3] This report will <u>not</u> be written for the computer scientist or the computing center manager and these specialists will probably disagree with much of what is said. The report will summarize what is now going on in computing at institutions of higher education.

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[3]There might possibly be a larger but definitely separate report containing supplemental and more technical information.

It will indicate how to recognize the state of computing an institution is presently at, and where the institution is likely to be going. It will analyze the various pressures and pressure groups involved, who really determines what is offered, and more importantly not offered, and why. Hopefully this report will give the beleaguered top administrators some feel for what is going on around them and what questions to ask of their own computing specialists. It will not tell the administrator what is the right decision or what is the wrong decision, for only the institution can determine that. What the report will give is a menu of alternatives and possibly some ammunition. It will give some indications of what is good about an entree and what is bad, what is the price you pay and the benefits you buy. The report will close with several scenarios taken from real situations. The names, obviously, will be changed in order to protect the guilty.

As a result of putting this report together, when called and asked to appear on this panel, we chose as a title for the presentation, "The Games Universities Play." At first blush the title may seem facetious, but I assure you we are quite serious. The title is due to the many similarities between what we have seen going on in institutional computing and the content of the late Dr. Berne's popular book. As stated before, colleges and universities have been faced, and are faced today, with various computing alternatives. Very early in our study we realized that computing decisions are not usually based upon technologically oriented arguments but rather are formed as a result of the dynamic human and organizational processes within the institution itself. A game is being played by the parties involved in the decision and the game

deals with the interaction of computing alternatives and established institutional decision making processes. The games concern themselves with what computing alternatives are considered and what ones are not considered, why they arose in the first place and how the issue is resolved. The game is played quite seriously, either knowingly or unknowingly, by administration, faculty and staff who are quite intelligent and by those who are not so intelligent. It is played by those who have the best interests of the institution at heart and those who have their own best interests at heart. The stakes are high and the outcome and total effect of the game at an institution may not be known for quite some time. The outcome will impact not only upon computing but also upon some of the most vital academic and administrative aspects of the institution.

All of us in this room are knowledgeable about computing. We know about all of the alternatives: internal and external networks, the emergence and effect of the mini's, the Chi Corporation and TUC. We all know of cooperative ventures and of the self-sufficient institution. Therefore I won't waste your time describing them. This is not to say that they won't be described in our final report. In fact they will. In view of the short amount of time, however, let me proceed to explore the environment in which computer decisions are made. The games that I will discuss are generalizations of games we have observed in one form or another at several institutions.

Let me start with a game most of us are familiar with. At the October, 1972 meeting of EDUCOM at Ann Arbor, Professor Berg discussed networks in terms of economic trade theory.[4] Our first game is based heavily upon

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[4]Berg, Sanford, "Networks in Economics", Networks and Disciplines, EDUCOM, 1973.

Professor Berg's paper and is called the "Balance of Payments Game." This game is played by several institutions who decide to share their computer resources through a network. The basic idea is that each institution will offer their own unique services to the network. The individual user at an institution has free choice as to which system he wants to use. His institution guarantees to pick up the tab for machine time used on other participating systems and associated network costs. This seems like an ideal situation. The idea behind this concept is that each institution can develop its own specialized facilities and software and let other instituions develop other capabilities according to its own special talents and a free exchange of trade will occur. However, the game that is being played is to maximize income. That is, institutions really want to derive more income from the selling of services to other institutions than they will spend buying services from other institutions for their own faculty, students and staff. In fact, every institution in the game is probably trying to maximize a positive balance and minimize the possibility of a negative balance. They will intend to use this income, in hard money, to further their own cause. Since there is a wide diversity in the pattern of outside support of disciplines and the types and machine requirements of services used, a balance of payments problem may develop. What computing was previously done at an institution with soft money may well become hard money leaving the institution. This may result in imposition of tariffs and the subversion of the educational process to produce what is marketable rather than what is of educational value. A game is also being played in the sense that in order to adopt

this alternative and not have the problems of tariffs and subversion, the institution must fundamentally change the way it allocates and budgets money. For example, many institutions do not allow a department to carry a deficit or surplus forward from year to year. In fact it is pretty hard for an institution to carry such balances into future years. Only if institutions change to a long term budgeting process for computing can they hope to achieve a balance of payments.

The "High Society Game" also involves cooperative ventures but is usually played by administrators in, to their way of thinking, prestigious schools. These administrators feel that they would rather do their computing with other like schools of "similar academic and social standing" rather than joining together with less prestigious institutions even though the latter may have the capability of providing better or lower service, but with lower prestige value. Make no bones about it, the computer is a symbol of prestige. The institutions that play the high society game, more often than not, are private and the mere thought of a student running a program on a public institution's computer conjures up visions of the great unwashed. There is no way for some large, diverse public institutions to understand why certain small "high prestige" colleges turn down their offers of help unless they understand the game isn't service, but high society.

The inverse of this game is the "Welfare or Proud Poor Game." This game is played by a large public institution truly trying to serve the needs of the state and making its services available to the other, poorer state institutions--usually four and two year colleges. Of course the

time made available is excess time and the hope is that the meager income derived will help pay for their overly large system. It is also hoped that the services rendered out of the kindness of their heart will be looked upon with favor at the next legislative budget hearing. This will enable them to buy even more excess capacity and staff. The recipients of this largess react as the proud poor. If you don't want to give me adequate services, equal in quality to yours, than I don't want it. I will find my own services, even if they are of a much lower quality and quantity with my own meager resources but at least it will be mine. It will also increase my prestige value. Only when you understand the "proud poor" can you understand the low usage of some welfare networks.

The "Faculty Power Game" is an interesting one and is played at large institutions with a strong tradition of faculty governance. At one institution where this game was being played, the administration was faced with a proliferation of mini's on campus (where a 360/50 may be considered a mini). The institution also had faculty members capable of obtaining outside support with hard money to buy computing equipment for their own research projects. The administration decided to appoint a faculty committee to oversee all computer operations and acquisitions. The intent was noble--get the faculty to channel the money into the main systems which were serving a declining clientele because of the competition. However, the administration didn't realize that the game being played was faculty power first and computing power second. The committee ended up advising, and even re-writing, a faculty member's request for a system of his own so that it could be justified to the institution. You scratch my back and I'll scratch yours. This game in the end, attempts to maximize faculty

power and minimize administrative power, no matter whether the computing decision was for the best or not.

The "Godfather Game" is played by the entire institution. The Godfather is the key person on campus who really controls computing and to whom all computing decisions are referred whether or not he shows up on the organizational chart. The Godfather has been a faculty member since 1940. In the mid 1950's he was responsible for bringing the first computer on campus. He programmed it, ran it and taught others to use it. He was responsible for the institution's first (and also the second and third) N.S.F. grant to buy a larger system. He moved on from computing center manager to start the new Computer Science Department. He is now, in his words, "only a user of computers." But, make no mistake about it, he is the Godfather of computing at the institution. No decision is made without consulting him. If something is proposed to the administration, the question is, "What does the Godfather think?" If you want something done, you don't see the computing center director and you don't see the computer advisory committee--you see the Godfather.

There are many other games that are played--the "Brokerage Game" and the "Financial Boss Game" for those with a knack for handling money, the "Colonial Expansion Game" and the "Fiefdom Game" for those with an imperialistic bent and the "States Rights Game" which can be summarized by the threat, "If you don't go along, you'll get your computing from the state game and fish department." I am sure that many of you in this room can come up with your own game or other games that you have seen, but that is not the point of this presentation.

The issue of selection and evaluation of computing alternatives boils down to how the institution really makes decisions about all matters of a pressing nature. Decisions regarding computing and computing alternatives involve an issue that many top administrators are unable to deal with. They are forced to make decisions about something which, by-and-large, they know little about. The real information is in the hands of those who have vested interests--and that is where the game starts. This is not to say that the administration is inept or ineffectual because nothing could be further from the truth. By-and-large they understand the alternatives and the implications of choosing the alternative, but they look to their specialists for technological information. My message to those of you in this room is somewhat different. Many of you are now trying to present a complex but technologically and financially sound idea to your institution. Many administrators understand, even if they don't admit it, the viability of the plans. However, the heart of the matter is the particular institutional dynamics at work, and it is these dynamics that really determine how the decision is made. To put it another way, most computer alternatives are proposed to the administration couched in technological terms and jargon. However, computer decisions are made the same way other major decisions are made. Further, these decisions are subject to the same constraints. In order to change an institution, and selection of a computing alternative will change the institution, one must first understand the institutional dynamics involved and then work within these parameters in order to play the game and then win it.